



United States
Department of
Agriculture

Forest
Service

Region 3

517 Gold Avenue, SW
Albuquerque, NM 87102

Reply To: 3420 Pest Management Evaluations

Date: JUN 27 1985

Subject: Western Spruce Budworm

To: Forest Supervisor, Lincoln NF

During the week of June 3, 1985, Jim Linnane, Dayle Bennett, and Mike Chavez of Forest Pest Management, with the assistance of Lincoln National Forest personnel, performed a western spruce budworm larval density sample survey on Lincoln National Forest and Mescalero Apache Indian lands treated with insecticides during the 1984 western spruce budworm suppression program. The survey objectives were to (1) provide data to estimate 1985 budworm population trend and (2) to provide followup data on project effectiveness.

The larval sampling procedure consisted of pruning one 45-cm branch from the midcrown of each sample Douglas-fir. Sample trees were located in clusters, with a cluster or plot consisting of three trees. Thus, three branch samples constituted a plot. For each branch sample, the total number of budworm larvae and the number of new shoots or buds were tallied. Larval densities are expressed as the number of insects per 100 buds of foliage. Sample plots were located near 1984 sample locations (the posttreatment sample points during the suppression program) so as to provide a comparison to the 1984 data. The 1984 suppression program consisted of 25 treatment blocks or sampling units (see enclosed map); because of time and manpower constraints, only 11 units were sampled in 1985. The criteria for sampling unit selection was based on information provided by the Lincoln National Forest.

Survey results appear on the enclosed table. Mean larval densities for 1985 range from 0.06 (Cooley) to 1.47 (Scott Able) per 100 buds. These estimates were considerably lower than the 1984 posttreatment estimates. Larval development during the week of June 3 ranged from fourth to sixth instar.

Based on the larval density data, the budworm population densities are in a declining trend. Defoliation during 1985, at least within the 1984 treatment areas, should be light to undetectable. This larval data also confirm defoliation predictions made from 1984 egg mass density estimates (see 3420 letter, dated January 9, 1985). However, Forest Pest Management will continue to monitor the budworm situation through aerial detection surveys and egg mass surveys later in the summer.

The larval density data also indicated the 1984 suppression program may have been very effective. However, the extremely low larval density estimates do not conform with recent experiences with similar suppression programs on the Carson National Forest. Continued monitoring, in future years, is recommended to completely evaluate the 1984 project's effectiveness.





Forest Supervisor, Lincoln NF

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Forest Pest Management appreciates the Lincoln National Forest's cooperation and assistance on this survey. We particularly express our gratitude to the Mayhill Ranger District for the use of their personnel.

for James Beatty
DOUGLAS L. PARKER
Director of Forest Pest Management

Enclosures (2)

cc:
BIA, Albuquerque Area Office
BIA, Mescalero Agency

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TABLE 1.--Larval density sampling results for Lincoln National Forest and Mescalero Apache Indian lands, 1985

Sampling unit¹

	1984 posttreatment larval estimate		1985 larval estimate	
	Sample size	Larvae/100 buds + S.E.	Sample size	Larvae/100 buds + S.E.
Cloudcroft	23	5.24 ± 0.59	17	0.29 ± 0.10
La Luz	25	8.54 ± 0.88	16	0.40 ± 0.18
James Canyon	25	3.74 ± 1.27	20	0.36 ± 0.11
Turkey Pen	25	1.77 ± 0.37	10	0.28 ± 0.12
Firman	25	3.05 ± 0.63	10	0.30 ± 0.25
Pumphouse	25	7.30 ± 1.8	11	0.42 ± 0.16
Wayland	25	7.16 ± 1.11	22	0.25 ± 0.08
Sawmill	25	0.84 ± 0.22	17	0.26 ± 0.10
Scott Able	25	4.14 ± 0.95	4	1.47 ± 0.17
Baird	14	3.50 ± 0.56	13	0.13 ± 0.06
Cooley	13	1.91 ± 0.30	7	0.06 ± 0.06

¹Units are based on treatment blocks established during the 1984 suppression program; see enclosed map.



Appendix C.-- Location of treatment blocks

